CLAIMS

1. A scribe method for a brittle material substrate, in which a plurality of scribe lines are formed in directions intersecting with one another in a surface of the brittle material substrate,

wherein, after forming at least one scribe line in a first direction by a scribe means generating a high-penetration vertical crack in the brittle material substrate by applying impacts of a short period to the point on the surface of the brittle material substrate, at least one scribe line of a second direction along a direction intersecting with the at least one scribe line of the first direction is formed with the scribe means by scribing without producing intersections with the scribe line(s) of the first direction.

2. A scribe apparatus for carrying out the scribe method according to claim 1, the scribe apparatus comprising:

a scribe means for generating a high-penetration vertical crack in the brittle material substrate by applying impacts of a short period to the point on the surface of the brittle material substrate; and

a travel motion control means for letting the scribe means travel while avoiding scribe lines formed in the first direction when forming the at least one scribe line of the second direction with the scribe means.

3. A scribe method for a brittle material substrate, in which a plurality of scribe lines intersecting with one another are formed in a surface of the brittle material substrate,

wherein, when sequentially forming in the surface of the brittle material substrate at least one scribe line of a first direction and at least one scribe line of a second direction intersecting with the at least one scribe line of the first direction with a scribe means generating a high-penetration vertical crack in the brittle material substrate by applying impacts of a short

period to the point on the surface of the brittle material substrate, the relation between a load P1 that is applied to the scribe means while forming the at least one scribe line in the first direction and a load P2 that is applied to the scribe means while forming the at least one scribe line in the second direction is set to

$P1 > P2$.

4. A scribe apparatus for carrying out the scribe method according to claim 3, the scribe apparatus comprising:

a scribe means generating a high-penetration vertical crack in the brittle material substrate by applying impacts of a short period to the point on the surface of the brittle material substrate; and

a load control means for controlling a load applied to the scribe means such that the relation between the load P1 that is applied to the scribe means while forming the at least one scribe line in the first direction and the load P2 that is applied to the scribe means while forming the at least one scribe line in the second direction is

$P1 > P2$.